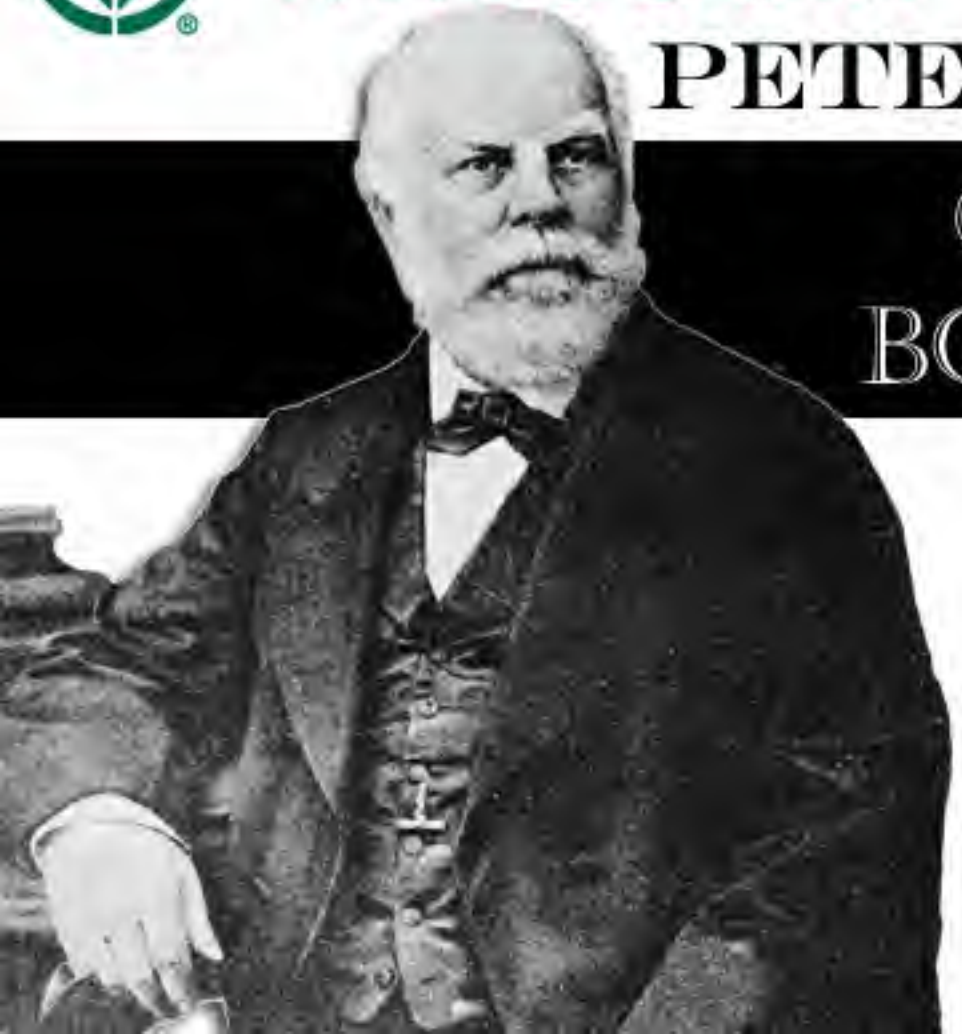
Missouri Botanical Garden
Peter H. Raven Library

George Engelmann Botanical Notebooks



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1472-81

Fuga

Synonymy

MISSOURI BOTANICAL GARDEN
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(882)

Heloscíadium Koch

MISSOURI BOTANICAL GARDEN
cm 0 1 2 3 4 5 6 7 8 9 10
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10605

Spruce II. 104

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cm
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MISSOURI BOTANICAL GARDEN

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MISSOURI BOTANICAL GARDEN

Tsuga

Hesperopeuce Sutchi Engl. 1868.
T. Sutchi — seeds 116 Miss Florentin Oct 16 1867
Rocky Mountains, Jeffrey) small,
apparally with resinous vesicles only on the inner
(or lower) surface — none on the outer!— wing covering
outer surface and remaining attached to it, when
free
upper part is breaking off
all the other specimens, preserved here, are garden-
plants, none with flower or fruit

10606

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Tsuga

London Gardner's Chronicle 1875 Dec 4th p. 710.

Leaf Structure of Conifers
by Prof W. R McNab M.D.

Referring to Bertrand's paper and enlarging on it McNab finds Pattoniana & Hookeriana distinct. He characterizes the species.

1. Abies Hookeriana Murray Edinb. new phil Jour 1855 p. 289
shoots hairy, leaves 4–7‴ long, with stomata, margin entire, obtuse, both sides of leaf similar, dark green, 4–6 rows of stomata on each side of median line. Resin canal separated from the sheath of the fibrovascular bundles by 1 or 2 layers of large chlorophyll-bearing cells, hypoderm nearly continuous around the whole leaf. Leaf more tetragonous than in next

2. A. Pattoniï Jeffrey Oregon Bot Sp shoots hairy, leaves 6–9 lines long, margin denticulate near the obtuse apex, upper side yellowish green with 2–4 rows of stomata on each side of the slightly marked central furrow, beneath with 6–7 rows of stomata on each side of the middle line. — Resin canal in contact with sheath of bundles, hypoderm well developed (nearly all around leaf.)

3. A. Canadensis shoots hairy leaves 6–9 l. long, margin rough apex obtuse, central furrow on upper dark green side; 8–9 rows of stomata beneath on each side of the prominent resin canals. No hypoderma. Resin canal in contact with sheath

4 A Mertensiana shoots hairy, leaves 4–7 l. long, margin ciliate apex obtuse, central furrow on upper dark green side; 8 or 9 rows of stomata beneath on each side of the middle line, where the hypoderm is developed. Hypoderm at margin of leaf "and above midrib"

5, A Brunoniana (dumosa) shoots hairy, leaves 12–18 lines long "deciduous" margins slightly reflexed, serrulate, obtuse, upper side grass green with a central furrow; beneath with a band of 9 or 10 rows of stomata, close to each side of central carina. — Hypoderma at margin of leaf, and at each side of resin canal.

over

This is the true Tsuga Pat.

0 1 2 3 4 5 6 7 8 9 10 cm
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MISSOURI BOTANICAL GARDEN

10607

× obtuse or one place on another: acute is said.

6. Abies Sieboldii Carr. Pinus Tsuga Ant. Pad. et. shoots glabrous
leaves 8–10 l. long, entire, apex emarginate, sometimes obtuse × acute,
above dark green with central furrow, beneath with a band of
6–8 rows of stomata on each side of middle line. Hypoderma
on margin of leaf only.

Nos 1–5 have hairy grey shoots, 6 glabrous

1 & 2 have stomata on both sides 3–6 only beneath.

1 has the resin canal separate from the sheath of bundle

2– 2–6 have it close to sheath of bundle

1 & 2 have hypoderma pretty well developed all around

3 3 no hypoderma 4 hyp. on margins & midrib

5 hyp. all margins and on both sides of the
res canal, 6 hyp. on margins only.

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Tsuga, ex section, Eudt Conif

—— ex genus, Carrière Conif

Pseudoides
Micropeuce } Spach Hist. veg. phan II. 423

Ketelearia Carrière Rev. Hort. 1866 p 446
et Conif ed 2 p. 260

gen Pseudotsuga Carr. Conif ed 2. p. 256
(1867 ?)

Engelmann ÷ Bot Jrnl. 1868 (24 July)
vol 26 p. 484

Abies Link

Tsuga Carr.

Pseudoides Eng. (Pseudo Tsuga Carr 1866)

Hesperopeuce Eng

Larix

Cedrus

Picea Link

Pinus

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10608

15.70
20
2.5
37.75 Cattle 6.30
70.75
128.85
121.10

28 Sheep
21.30 Hogs

Dear Sir
Please be pleased to
have Your Cattle at-
Stock Office No 102 N-
Jefferson Ave at 4 o'clock
Cattle to-
look at a pair of Cattle
Slatterly Bro from Ind Terr
they were the heavy
est I should have
bought them to per
in Mo but say - Cap
Rennie be sold what
Retired Sea Trapper
& an Old Resident
Says Respectfully
A. J. Mueller

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Ille Berlin Jun 1869

Tsuga Brunoniana Wall Nepal. - amento larger than in Canadensis, cones short thicker, Wall. n. 6661.

Tsuga dumosa Don Sikkim Hooker, like the former leaves after very short growth,

10609

20
50
125
50
245

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Bridgei (Aves) Kellogg Proc Cal Ac. 2. 8 (1859, publ. 1863)

(suggest the Bridgesii, Jouy, as it is said to be allied

to T. Canadensis – glandular sucket etc from Yaquina River.

10610

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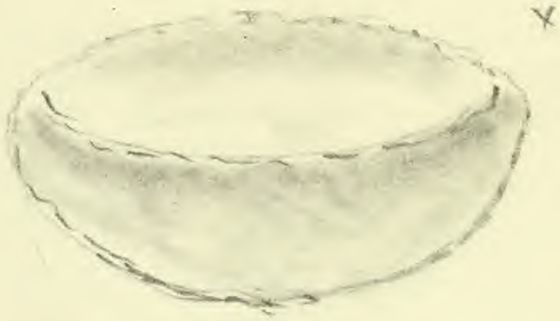
Pollen of T. Canadensis in turpentine April 25 1865



×415

×785

There can be no doubt that there is a saucer ~~shape~~ like depression in the centre, which in water it seems to swell up and sulphuric acid

those different circles appear at different focal points and the three innermost may represent the three walls of the cuticular cells. The smallest one is most distinct and evidently the lowest — the outer one is the highest. The walls are as high as the diameter — the circle next to the rim is occasioned by the thickness of the cuticle

10611

ALEX. LEITCH.

APOTHECARY & PHARMACEUTIST.

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

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0 1 2 3 4 5 6 7 8 9 10
cm
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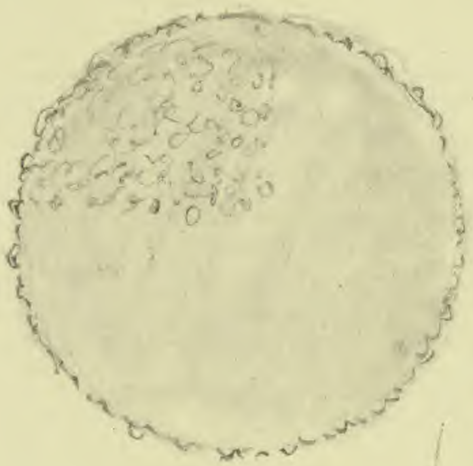
Tsuga Canadensis

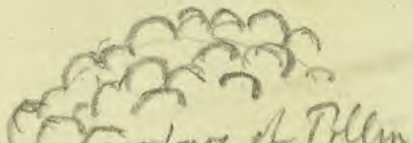
Hort Bot Cambridge May 1863

May & June 1863



×415

m
0,036



Surface of Pollen
× 785

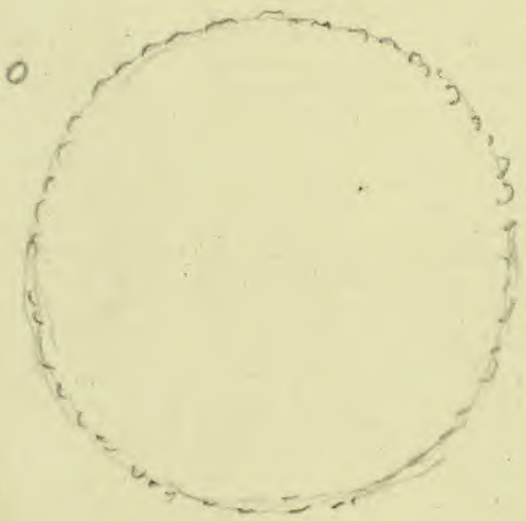
H. B. Cambridge May 1865

Pollen

0.030 – 0.038 m/m

usually 0.033

"
0.040



Sulphuric acid makes the pollen grains
lighter, more transparent & smaller
Caustic Potash only lighter and
more transparent.

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10612

M. W. ALEXANDER,

SOUTH-EAST CORNER OF FOURTH AND MARKET STREETS,

ST. LOUIS.

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Kew Herb Sept 8 1859

Tsuga Brunoniana (M. Lindley) Pinus Dumosa Lamb. t. 42
P. Deodara Wall. — Sikkim, 8–10000' J. D Hooker

, Tsuga Abies Tsuga S. Z. Nippon, Maximowicz 1864 leg. Tschonoski
very Common and short Cones, more distinctly petioled

. T. diversifolia n. sp. = Abies Nagasaki; cult. Maximowicz 1863

shades copy

T. Mertensiana from many north western localities — difficult
to distinguish from T. Canadensis

T. Albertiana Murray = Abies — Proc. Hort Soc. April 1863 fide Murray,
is named by Murray himself "—[perhaps the origin of the Abies
from Fraser River coll by Bridges

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cm
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10613

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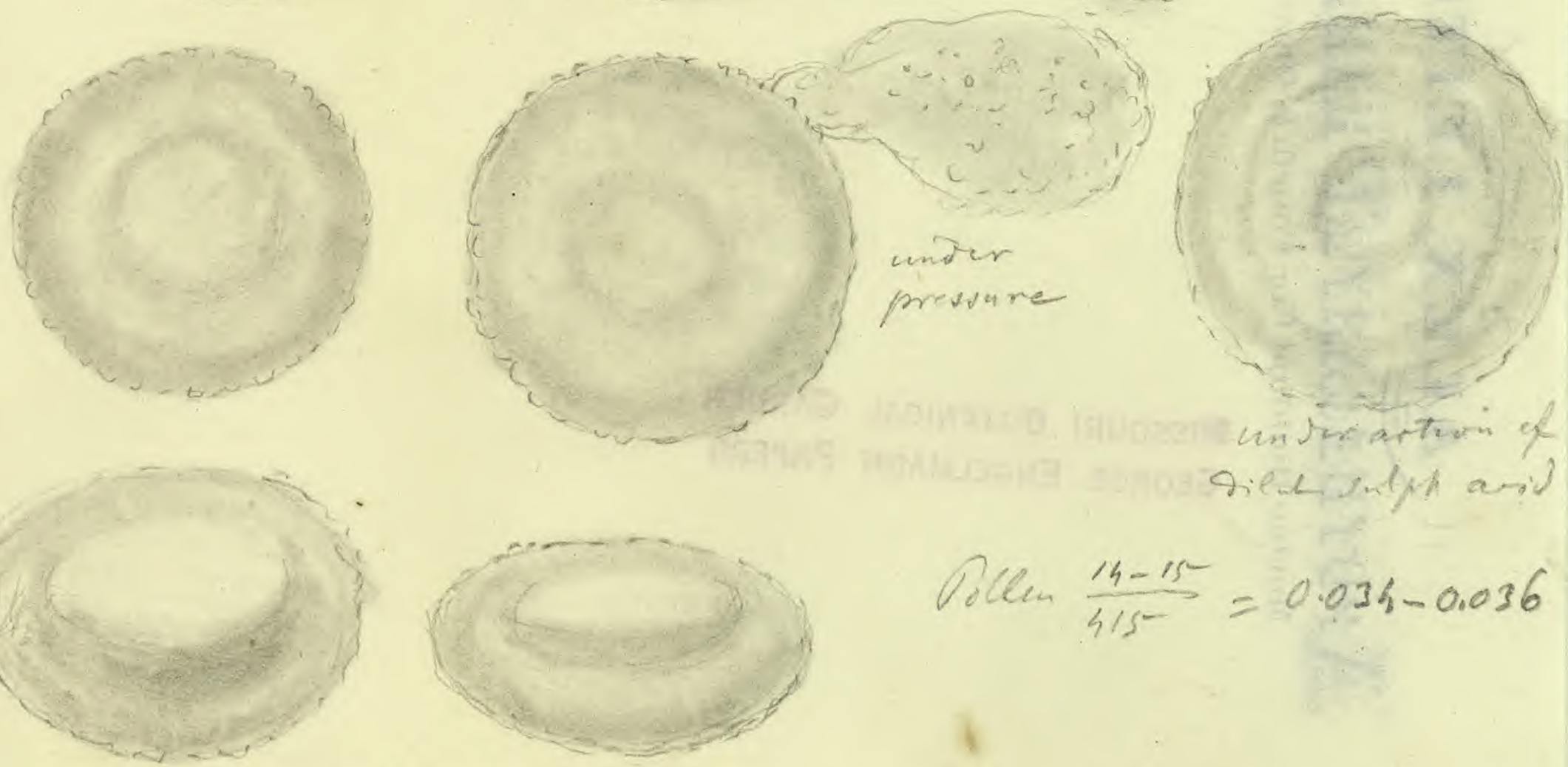
Pollen ×415 — Beta Cannabina ♀ — April 25 1865

H.B. Missouri (fresh)

in a solution of Sugar & Gum (same appearance ♀ Sulph Acid and ♂ ♀ water

Pollen 14-15/415 ℓ = 0.034 - 0.036 li



under pressure

under action of dil. Sulph acid

Pollen 14-15/415 = 0.034 - 0.036

under Sulph acid

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ALEX. LEITCH,

APOTHECARY & PHARMACEUTIST,

Marble Building Cor. Fourth & Olive Sts. St Louis, Mo.

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10614

0 cm 1 2 3 4 5 6 7 8 9 10
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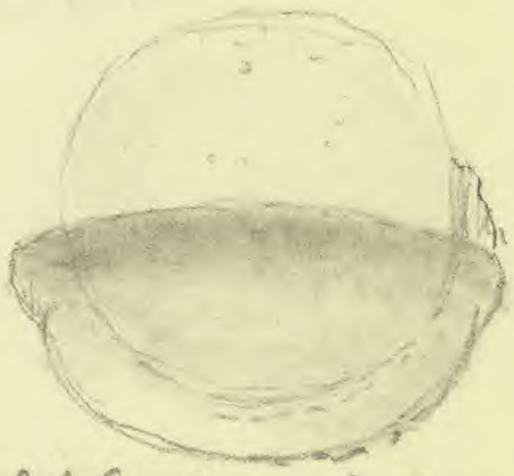
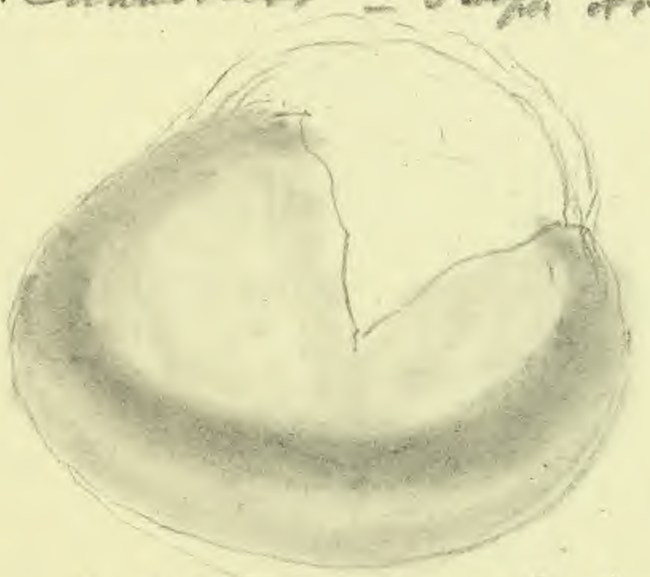
×415 Pollen of T. Canadensis ☉ Sulph Acid Apr 25 1865



☉ Sulph Acid, under some pressure



☉ Sulph acid, under pressure

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10615

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